SPECIFICATION AMENDMENTS

Please replace the paragraphs appearing on Pg. 2, ln. 31 – Pg. 3, ln. 9 with the following:

U. S. Patent 6,092, 409 of 25 July 2000 describes a process for validating the flow calibration factor of a Coriolis flowmeter by comparing the measured density of known fluid to the known density. A deviation ~~deivation~~ from the expected density can represent possible error conditions in the flow tube such as material corrosion or erosion.

However, it is a problem to accurately measure density or implement measurement conditions to facilitate ~~faciliate~~ accurate density measurement. Material density can be subject to significant change with temperature. Density can also change to a lesser extent with changes in other parameters such as material pressure and material composition. Therefore, there is a need in the art for a system that more accurately detects a possible change in the material or cross sectional properties of a flow tube indicating the mass flow rates measured by the Coriolis flowmeter may be inaccurate.

Please replace the paragraphs appearing on Pg. 3, ll. 14-26 with the following:

A Coriolis flowmeter has pick off sensors on the flow tube that are connected to meter electronics. Signals from the pick off sensors are received by the meter electronics and are converted to machine-readable or digital signals. The digital signals are used as data for applications performed by a processor in the meter electronics to determine certain properties, such as mass flow rate and density, of the material flowing through the flow tube. The instructions for these applications are stored in a memory connected to the processor. The present invention relates an application performed by the processor that validates the flow calibration factor of the Coriolis flow meter. The validation application measures a period of oscillation of the flow tube as a material, such as the process fluid, having a prior ~~priorly~~ characterized density flows through the flow tube. The measured period of oscillation is then used to detect possible error conditions in the flow tube using derivations of an equation for determining the density of a material from a period of oscillation of the flow tube.

Please replace the paragraphs appearing on Pg. 5, ll. 3-19 with the following:

In accordance with a second possible exemplary embodiment of the invention, a density determination may be made that is compensated for temperature and/or pressure and/or material compensation by the steps of programming a multi dimensional look-up table which correlates information relating all possible operating temperatures, operating pressures and material compositions. The table may be then used to first provide temperature compensated density information. This is done by the steps of determining the instantaneous material temperature and density reading and entering this information into the look-up table which produces an output that represents the density reading compensated to a prior ~~priorly~~ preselected reference temperature. In this manner, a plurality of density readings at different temperatures can be made, but each reading is temperature compensated to the preselected reference temperature. This provides a series of density readings equal to that which would have been obtained if made during a time interval when the measured temperature equals the preselected temperature. The temperature compensated density readings thus made, can then be used as desired for a flow calibration factor validation or can be further compensated in a similar manner using the look-up table for changes in pressure and material composition.

Please replace the paragraph appearing on Pg. 10, ln. 27 – Pg. 11, ln. 5 with the following:

FIG. 2 illustrates a block diagram of the components of meter electronics 20 which perform the processes related to the present invention. Paths 111 and 111' transmit the left and right velocity signals from flowmeter assembly 10 to meter electronics 20. The velocity signals are received by analog to digital (A/D) converter ~~convertor~~ 203 in meter electronic 20. A/D converter ~~convertor~~ 203 converts the left and right velocity signals to digital signals usable by processor 201 and transmits the digital signals over path 213 to 1/0 bus 210. The digital signals are carried by I/O bus 210 to processor 201. Driver signals are transmitted over I/O bus 210 to path 212 which applies the signals to digital to analog (D/A) converter ~~convertor~~ 202. The analog signals from D/A converter ~~convertor~~ 202 are transmitted to driver 104 via path 110. Path 26 is connected to I/O bus 210 and carries signals to input and output means (not shown) which allow meter electronics 20 to receive data from and convey data to an operator.

Please replace the paragraph appearing on Pg. 13, ll. 27-32 with the following:

As portrayed in FIG. 5, the temperature of the process material varies between 40° C and 60° C with the reference temperature being 50° C and being on the axis 502. By measuring the density only at the times represented by the dots 504, a succession of temperature compensated density measurements is obtained at the constant temperature of 50° C. This succession of temperature compensated density measurements is therefore free of the influence of temperature ~~of~~ variations.

Please replace the paragraph appearing on Pg. 17, ln. 28 – Pg. 18, ln. 5 with the following:

Step 1101 ~~1001~~ repeatedly measures the line density. Each line density measurement is processed by the table lookup information of FIG. 5 which compensates the measured line density for the difference between the measured temperature value and the reference temperature value. By means of the table lookup stored in memory, a density for each measurement is obtained that represents the measured line density value compensated for the temperature of 50°C. This temperature compensated density is stored in RAM memory 230 by step 1102. The output of step 1102 is applied to step 1103.